

AMENDMENTS TO THE CLAIMS

Please amend claims as set forth below.

1. (Currently amended) A method of automatic translation of sentences from a source language L_s selected from language L_1 to L_n to a target language L_t selected from languages L_1 to L_n , in which steps thereof are implemented by a computer, comprising the steps of :

(i) providing grammars G_1 to G_n of all the languages L_1 to L_n respectively, in which each grammar is unique to that particular language, and a text 'S' in the source language L_s as inputs;

(ii) creating a unified grammar specification UG for the grammars G_1 to G_n , in which equivalent grammar production rules of each grammar G_1 to G_n are combined into a single unified production rule;

(iii) separating the input text 'S' in the source language L_s into a list of tokens using a lexical analyser for the source language L_s ;

(iv) setting a current non-terminal symbol to the start symbol of the unified grammar specification UG;

(v) obtaining a set of the grammar production rules from the unified grammar specification UG, which contain the current non-terminal symbol as their target non-terminal;

(vi) for each unified grammar production rule P in the set of the grammar production rules obtained from the previous step (v), taking each symbol one by one from a list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s , determining whether it is a terminal symbol or a non-terminal symbol;

(vii) for each terminal symbol obtained from the previous step, which is equivalent to a corresponding symbol in the list of tokens T of the input text in the source language L_s , considering the next symbol in said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s and for each non-terminal symbol E_s obtained from the previous step, repeating step (v) onwards with E_s as the current non-terminal symbol;

(viii) if all the symbols in the said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s match with all the symbols in the list of tokens T of the input text in the source language L_s , obtaining a list of symbols t corresponding to the target

language grammar G_t from the unified grammar production rule P and for those symbols which do not match, repeating step (vi) onwards for a next unified grammar production rule P defined for the non-terminal symbol 'E';

(ix) taking each symbol one by one, from the list of symbols t corresponding to the target grammar G_t and determining whether it is a terminal symbol or a non-terminal symbol;

(x) for each terminal symbol obtained from the previous step outputting the symbol, and considering the next symbol and for each non-terminal obtained from the previous step, obtaining another unified grammar production rule P corresponding to that non-terminal symbol and repeating the previous step with the new unified grammar production rule, till all the symbols in the list of symbols t corresponding to the target language grammar G_t are exhausted.

2. (Original) The method as claimed in claim 1, wherein the unified grammar specification UG , for the grammars G_1 to G_n of languages L_1 to L_n , is created by the steps of:

(i) for every production rule P of the grammars G_1 to G_n , of the languages L_1 to L_n , defining a unified production rule P_1 in the unified grammar specification UG having the target non-terminal symbol of the production rule P as its target non-terminal symbol; and

(ii) for each grammar G_1 to G_n creating a list of terminal symbols and/or non-terminal symbols in the said production rule P_1 and adding each and every symbol in the list of terminal symbols and/or non-terminal symbols that are represented by the target non-terminal symbol in the production rule P to the said unified production rule P_1 and repeating previous step for the next production rule of the grammars G_1 to G_n .

3. (New) An apparatus for automatic translation of sentences from a source language L_s selected from language L_1 to L_n to a target language L_t selected from languages L_1 to L_n comprising:

(i) means for providing grammars G_1 to G_n of all the languages L_1 to L_n respectively, in which each grammar is unique to that particular language, and a text 'S' in the source language L_s as inputs;

(ii) means for creating a unified grammar specification UG for the grammars G_1 to G_n , in which equivalent grammar production rules of each grammar G_1 to G_n are combined into a single unified production rule;

(iii) means for separating the input text 'S' in the source language L_s into a list of tokens using a lexical analyser for the source language L_s ;

(iv) means for setting a current non-terminal symbol to the start symbol of the unified grammar specification UG;

(v) grammar production rule obtaining means for obtaining a set of the grammar production rules from the united grammar specification UG, which contain the current non-terminal symbol as their target non-terminal;

(vi) for each unified grammar production rule P in the set of the grammar production rules obtained from the grammar production rule obtaining means, symbol taking means for taking each symbol one by one from a list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s , determining whether it is a terminal symbol or a non-terminal symbol;

(vii) for each terminal symbol obtained from the symbol taking means, which is equivalent to a corresponding symbol in the list of tokens T of the input text in the source language L_s , means for considering the next symbol in said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s and for each non-terminal symbol E_s obtained from the symbol taking means, repeating obtaining a set of the grammar production rules from the united grammar specification UG by the grammar production rule obtaining means, onwards with E_s as the current non-terminal symbol;

(viii) if all the symbols in the said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s match with all the symbols in the list of tokens T of the input text in the source language L_s , means for obtaining a list of symbols t corresponding to the target language grammar G_t from the unified grammar production rule P and for those symbols which do not match,

repeating taking each symbol one by one from a list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s by the symbol taking means, onwards for a next unified grammar production rule P defined for the non-terminal symbol 'E';

(ix) determining means for taking each symbol one by one, from the list of symbols t corresponding to the target grammar G_t and determining whether it is a terminal symbol or a non-terminal symbol;

(x) for each terminal symbol obtained from the determining means, means for outputting the symbol, and considering the next symbol and for each non-terminal obtained from the determining means, means for obtaining another unified grammar production rule P corresponding to that non-terminal symbol and repeating the determining means with the new unified grammar production rule, till all the symbols in the list of symbols t corresponding to the target language grammar G_t are exhausted.

4. (New) A computer readable medium for automatic translation of sentences from a source language L_s selected from language L_1 to L_n to a target language L_t selected from languages L_1 to L_n , including program instructions executable by a computer system for:

(i) providing grammars G_1 to G_n of all the languages L_1 to L_n respectively, in which each grammar is unique to that particular language, and a text 'S' in the source language L_s as inputs;

(ii) creating a unified grammar specification UG for the grammars G_1 to G_n , in which equivalent grammar production rules of each grammar G_1 to G_n are combined into a single unified production rule;

(iii) separating the input text 'S' in the source language L_s into a list of tokens using a lexical analyser for the source language L_s ;

(iv) setting a current non-terminal symbol to the start symbol of the unified grammar specification UG ;

(v) obtaining a set of the grammar production rules from the unified grammar specification UG , which contain the current non-terminal symbol as their target non-terminal;

(vi) for each unified grammar production rule P in the set of the grammar production rules obtained from the previous step (v), taking each symbol one by one from a list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s , determining whether it is a terminal symbol or a non-terminal symbol;

(vii) for each terminal symbol obtained from the previous step, which is equivalent to a corresponding symbol in the list of tokens T of the input text in the source language L_s , considering the next symbol in said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s and for each non-terminal symbol E_s obtained from the previous step, repeating step (v) onwards with E_s as the current non-terminal symbol;

(viii) if all the symbols in the said list of terminal symbols and/or non-terminal symbols corresponding to the source language grammar G_s match with all the symbols in the list of tokens T of the input text in the source language L_s , obtaining a list of symbols t corresponding to the target language grammar G_t from the unified grammar production rule P and for those symbols which do not match, repeating step (vi) onwards for a next unified grammar production rule P defined for the non-terminal symbol 'E';

(ix) taking each symbol one by one, from the list of symbols t corresponding to the target grammar G_t and determining whether it is a terminal symbol or a non-terminal symbol;

(x) for each terminal symbol obtained from the previous step outputting the symbol, and considering the next symbol and for each non-terminal obtained from the previous step, obtaining another unified grammar production rule P corresponding to that non-terminal symbol and repeating the previous step with the new unified grammar production rule, till all the symbols in the list of symbols t corresponding to the target language grammar G_t are exhausted.